

Ceramic Disc Capacitors, X7R



Mechanical

Available lead code: (unit : mm)

Lead type	P/N Digits	Pitch (F)	Lead Length (L)	Available Rated Voltage	Packing	Lead Configuration
Lead Style : B Straight Long Lead	B20C7	7.5 ± 1	20 Min.	1 KV, 2 KV	Bulk	
	B20C0	10 ± 1				

※ Lead diameter : $\phi = 0.6 \pm 0.06$ mm

※ e (Coating extension on leads):

For straight lead style : 2 mm maximum when the rated voltage is 1 K V dc;

3 mm maximum when the rated voltage is 2 K V dc

Capacitance Value vs. Rated Voltage, Product Diameter:

TC	X7R (Class II, Temperature: -55°C to +125°C, TCC: ±15%)										
	Rate Voltage	1 KV					2 KV				
D ϕ	050	060	070	080	100	060	070	080	100	120	130
D Maximum (mm)	6	7	8	9	11	7.5	8.5	9.5	11.5	13.5	14.5
T Maximum (mm)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
100	101	-	-	-	-	101	-	-	-	-	-
120	121	-	-	-	-	121	-	-	-	-	-
150	151	-	-	-	-	151	-	-	-	-	-
180	181	-	-	-	-	181	-	-	-	-	-
200	201	-	-	-	-	201	-	-	-	-	-
220	221	-	-	-	-	221	-	-	-	-	-
240	241	-	-	-	-	241	-	-	-	-	-
270	271	-	-	-	-	271	-	-	-	-	-
300	301	-	-	-	-	301	-	-	-	-	-
330	331	-	-	-	-	331	-	-	-	-	-
360	361	-	-	-	-	361	-	-	-	-	-
390	391	-	-	-	-	391	-	-	-	-	-
470	471	-	-	-	-	471	-	-	-	-	-
510	-	511	-	-	-	511	-	-	-	-	-
560	-	561	-	-	-	561	-	-	-	-	-
620	-	621	-	-	-	621	-	-	-	-	-
680	-	681	-	-	-	681	-	-	-	-	-
750	-	751	-	-	-	-	-	-	-	-	-
820	-	821	-	-	-	-	821	-	-	-	-

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Capacitance Value vs. Rated Voltage, Product Diameter:

TC	X7R (Class II, Temperature: -55°C to +125°C, TCC: ±15%)										
Rate Voltage	1 KV					2 KV					
D φ	050	060	070	080	100	060	070	080	100	120	130
D Maximum (mm)	6	7	8	9	11	7.5	8.5	9.5	11.5	13.5	14.5
T Maximum (mm)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
1,000	-	102	-	-	-	-	102	-	-	-	-
1,200	-	-	122	-	-	-	122	-	-	-	-
1,500	-	-	152	-	-	-	152	-	-	-	-
1,800	-	-	-	182	-	-	-	182	-	-	-
2,000	-	-	-	202	-	-	-	-	202	-	-
2,200	-	-	-	222	-	-	-	-	222	-	-
2,700	-	-	-	-	272	-	-	-	272	-	-
3,000	-	-	-	-	302	-	-	-	-	302	-
3,300	-	-	-	-	332	-	-	-	-	332	-
3,600	-	-	-	-	362	-	-	-	-	362	-
3,900	-	-	-	-	392	-	-	-	-	392	-
4,700	-	-	-	-	-	-	-	-	-	-	472
5,000	-	-	-	-	-	-	-	-	-	-	-
5,600	-	-	-	-	-	-	-	-	-	-	-
6,800	-	-	-	-	-	-	-	-	-	-	-
8,200	-	-	-	-	-	-	-	-	-	-	-
10,000	-	-	-	-	-	-	-	-	-	-	-

Packaging

Packaging Style

Bulk : 1,000 pieces / bag

Specification and Test Method:

Scope: This specification applies to X7R HI-K ceramic type capacitor

Test conditions: Unless otherwise specified, all tests shall be operated at the standard test conditions of temperature 5°C to 35°C and relative humidity 45% to 85%. When fails a test, retest be operated at the conditions of temperature 25°C ± 2°C, relative humidity of 60% to 70% and barometric pressure 860 to 1,060 mbar

Handle procedure: To avoid unexpected testing results from occurring, the tested capacitor must be kept at room temperature for at least 30 minutes and completely discharged

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Test Items:

Item	Post-Test Requirements	Testing Procedure
Appearance Structure Size	No Abnormalities	As stated in section 3
Withstand Voltage	No Abnormalities	1 KV and Above : 200% Rated Voltage With 50 MA Maximum Charging Current for 1 to 5 s
Insulation Resistance	10,000 M Ω Min.	Insulation Resistance Shall be Measured at 60 \pm 5 Seconds After Rated Voltage Applied Rated Voltage : 500 V and Above = 500 V
Capacitance	Tolerance : K : \pm 10%	Testing Frequency : 1 KHZ \pm 20% Testing Voltage : 1 \pm 0.2 V rms
Temperature Range	-55°C to +125°C	
Dissipation Factor (DF)	Below 2.5%	As Above Stipulation of Capacitance
Temperature Characteristic	Capacitance Change : Within \pm 15%	Capacitance Shall be Measured at 25°C and Classified as Capacitance Change : -55°C to +125°C
Terminal Strength	Tensile Strength : No Breakdown	Wire Diameter 0.5 mm, Loading Weight 0.5 kgs, for 10 \pm 1 s Wire Diameter 0.6 mm, Loading Weight 1 kgs, for 10 \pm 1 s
	Bending Strength : No Breakdown	Wire Diameter 0.6 mm, Loading Weight 0.25 kgs Wire Diameter 0.6 mm, Loading Weight 0.5 kgs (Bending Back and Forth 90° Twice)
Solderability	Lead Wire Shall be Soldered Over 3/4 of The Circumferential Direction	Solder Temperature 255 (+5 / -0)°C and Dipping Time 2 \pm 0.5 s Flux : Weight Ratio of Resin 25%
Soldering Heat Resistance	Appearance : No Abnormalities	Lead Wire of Terminals Shall be Immersed up to 2 mm form Body Body Diameter > 5 mm : Into The Molten Solder of Which Temperature 260 (+ 5 / - 0) °C for 5 to 10 s Then Leave at Standard Test Conditions for 1 to 2 Hours, Then Measured * When Soldering Capacitor With a Soldering Iron, it Should be Performed in Following Conditions
	Capacitance Change : \pm 15 % Max.	Temperature of Iron-Tip : 350 to 400°C Soldering Iron Wattage : 50 W Max. Soldering Time : 3.5 Seconds Max.
	Withstand Voltage : (Between Terminals) No Abnormalities	
Humidity Characteristic (Stable Situation)	Appearance : No Abnormalities	Capacitors Shall be Subjected to a Relative Humidity of 90 to 95% at 40 \pm 2°C for 500 (+ 24 / - 0) Hours Then Dried for 1 to 2 Hours and Measured
	Capacitance Change : \pm 15% Max.	
	DF : 15% Max.	
	Insulation Resistance : 1,000 M Ω Min.	

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Test Items:

Item	Post-Test Requirements	Testing Procedure
Humidity Loading	Appearance : No Abnormalities	Capacitors Shall be Subjected to a Relative Humidity of 90 to 95% at 40 ±2°C for 500 (+ 24 / - 0) Hours With Rated Voltage Applied With 50 mA Maximum Then Dried for 24 ±2 Hours and Measured
	Capacitance Change : ±15% Max.	
	DF : 5% Max.	
	Insulation Resistance : 500 M Ω Min.	
High Temperature Loading	Appearance : No Abnormalities	Capacitors Shall be Subjected to a Test of 1 KV and Above : 150% Rated Voltage With 50 mA Max.
	Capacitance Change : ±15% Max.	
	DF : 4% Max.	
	Insulation Resistance : 1,000 M Ω Min.	

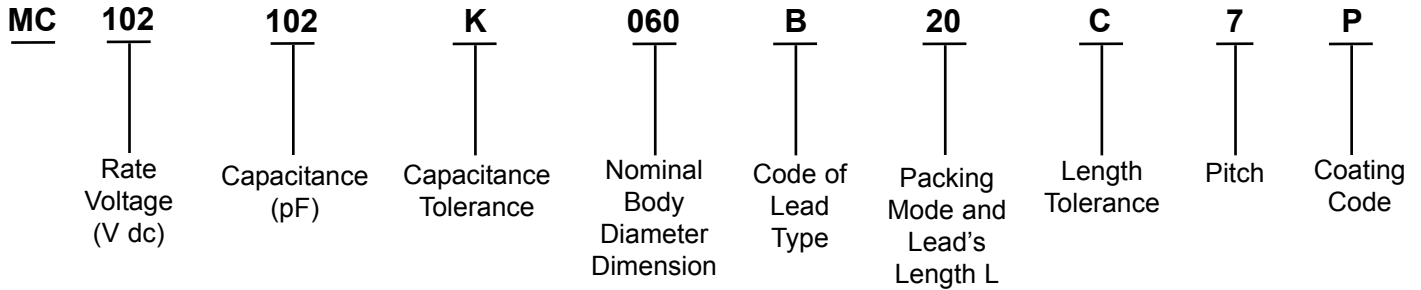
Part Number Table

Description	Part Number	Description	Part Number
Ceramic Disc Capacitor, X7R	MC102101K050B20C7P	Ceramic Disc Capacitor, X7R	MC202102K070B20C7B
Ceramic Disc Capacitor, X7R	MC102102K060B20C7P	Ceramic Disc Capacitor, X7R	MC202152K070B20C7B
Ceramic Disc Capacitor, X7R	MC102121K050B20C7P	Ceramic Disc Capacitor, X7R	MC202182K080B20C7B
Ceramic Disc Capacitor, X7R	MC102151K050B20C7P	Ceramic Disc Capacitor, X7R	MC202221K060B20C7B
Ceramic Disc Capacitor, X7R	MC102152K070B20C7P	Ceramic Disc Capacitor, X7R	MC202222K100B20C7B
Ceramic Disc Capacitor, X7R	MC102181K050B20C7P	Ceramic Disc Capacitor, X7R	MC202272K100B20C7B
Ceramic Disc Capacitor, X7R	MC102201K050B20C7P	Ceramic Disc Capacitor, X7R	MC202331K060B20C7B
Ceramic Disc Capacitor, X7R	MC102202K080B20C0P	Ceramic Disc Capacitor, X7R	MC202332K120B20C7B
Ceramic Disc Capacitor, X7R	MC102221K050B20C7P	Ceramic Disc Capacitor, X7R	MC202392K120B20C7B
Ceramic Disc Capacitor, X7R	MC102222K080B20C0P	Ceramic Disc Capacitor, X7R	MC202471K060B20C7B
Ceramic Disc Capacitor, X7R	MC102271K050B20C7P	Ceramic Disc Capacitor, X7R	MC202472K130B20C0B
Ceramic Disc Capacitor, X7R	MC102272K100B20C0P	Ceramic Disc Capacitor, X7R	MC202561K060B20C7B
Ceramic Disc Capacitor, X7R	MC102301K050B20C7P	Ceramic Disc Capacitor, X7R	MC202681K060B20C7B
Ceramic Disc Capacitor, X7R	MC102331K050B20C7P		
Ceramic Disc Capacitor, X7R	MC102391K050B20C7P		
Ceramic Disc Capacitor, X7R	MC102471K050B20C7P		
Ceramic Disc Capacitor, X7R	MC102561K060B20C7P		
Ceramic Disc Capacitor, X7R	MC102681K060B20C7P		
Ceramic Disc Capacitor, X7R	MC102751K060B20C7P		
Ceramic Disc Capacitor, X7R	MC102821K060B20C7P		
Ceramic Disc Capacitor, X7R	MC202101K060B20C7B		

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Part Number Explanation:



Rated Voltage (V dc)	: 102 = 1,000 V, 202 = 2,000 V
Capacitance (pF)	: 101 = 100, 471 = 470, 102 = 1,000, 222 = 2,200 and 472 = 4700
Capacitance Tolerance	: K = $\pm 10\%$
Nominal Body Diameter Dimension	: 050 = 5, 060 = 6, 070 = 7, 080 = 8, 100 = 10, 120 = 12 and 130 = 13 mm
Code of Lead Type	: Refer to Mechanical
Packing Mode and Lead's Length L	: 20 = 20 mm
Length Tolerance	: C = Min.
Pitch	: 7 = 7.5 ± 1 mm and 0 = 10 ± 1 mm
Coating Code	: P = Phenolic resin -Pb free, voltage ≤ 1 kV and B = Epoxy resin, Pb free, voltage ≥ 2 kV

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